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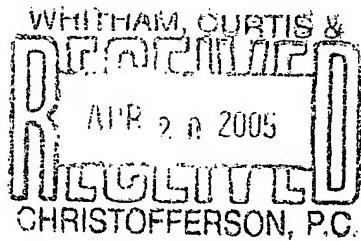
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Applicant

VIRGINIA COMMONWEALTH UNIVERSITY et al

The International Bureau transmits herewith the following documents:

- copy of the international application as published by the International Bureau on under  
No. WO
- copy of international application as republished by the International Bureau on 14 April 2005 (14.04.2005) under  
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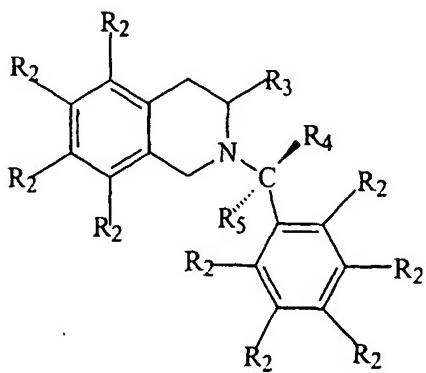
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*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

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(54) Title: **SULFATED BIS-CYCLIC AGENTS**



(57) Abstract: Sulfated bis-cyclic compounds that are potent anticoagulants and methods for their manufacture are provided. The sulfated compounds are bis-cyclic moieties comprised of an isoquinoline ring joined to a phenyl ring with the general chemical structure formula (I) where R<sub>2</sub> is hydrogen or a sulfate moiety, R<sub>3</sub> is either hydrogen or carboxylate moiety; R<sub>4</sub> is a hydrogen or oxygen; and R<sub>5</sub> is a hydrogen if R<sub>4</sub> is a hydrogen, and is absent if R<sub>4</sub> is oxygen. Counterions such as sodium may also be coordinated to the sulfate and carboxylate moieties.

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# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/15731

**A. CLASSIFICATION OF SUBJECT MATTER**

IPC(7) : C07D 217/04; A61K 31/47  
US CL : 546/146,149; 514/307

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 546/146,149; 514/307

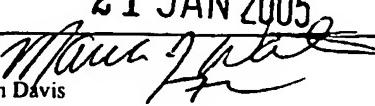
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  
NONE

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
CAS ONLINE

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	Gunnarsson et al. Designing Small, Nonsugar Activators of Antithrombin Using Hydropathic Interaction Analyses. J. Med. Chem. 2000. Vol. 45, pages 1233-1243.	1-15
A	Gunnarsson et al. Interaction of Designed Sulfated Falvanoids with Antithrombin: Lessons on the Design of Organic Activations. J. Med. Chem. 2002. Vol. 45, pages 4460-4470.	1-15

<input type="checkbox"/>	Further documents are listed in the continuation of Box C.	<input type="checkbox"/>	See patent family annex.
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"P"	document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search	Date of mailing of the international search report
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